

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference p27468WO MkÖ	FOR FURTHER ACTION	
See Form PCT/PEA/416		
International application No. PCT/EP2004/001766	International filing date (day/month/year) 23.02.2004	Priority date (day/month/year) 09.04.2003
International Patent Classification (IPC) or national classification and IPC H03G1/00, H03G3/30		
Applicant SONY ERICSSON MOBILE COMMUNICATIONS AB ET AL.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

- (sent to the applicant and to the International Bureau)* a total of sheets, as follows:
 - sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the International application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- (sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the International application
- Box No. VIII Certain observations on the international application

Date of submission of the demand 21.10.2004	Date of completion of this report 22.03.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Goethals, F Telephone No. +31 70 340-2219



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International application No.
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Box No. I Basis of the report

- With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
- With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-9 as originally filed

Claims, Numbers

1-15 as originally filed

Drawings, Sheets

17-77 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 the description, pages
 the claims, Nos.
 the drawings, sheets/figs
 the sequence listing (*specify*):
 any table(s) related to sequence listing (*specify*):

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 the description, pages
 the claims, Nos.
 the drawings, sheets/figs
 the sequence listing (*specify*):
 any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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Re Item V.

1. The following document is referred to in this communication:

D1 = US 5 909 643 A (01/06/1999)

2. There appears to be an inconsistency between the description, page 8, lines 11-19 and figure 7a. The figure indicates a reduction of the gain of a VGA, whereas the description mentions an increase of the VGA gain. It is understood however that the gain of the VGA is increased.

3. Claims 1 and 10 do not fulfill the requirements of Article 6 PCT for the following reason: It is not clear from claims 1 and 10 what is meant by the expression "**set the respective operating conditions in the inverse state**". Notwithstanding the previous objection, it is understood from the description, see page 8, lines 1-19, starting from a bypass amplification mode in a PA/bypass amplifying circuit, when wanting to increase the RF output power of a transmitter containing a VGA and the PA/bypass amplifying circuit, firstly the gain of the VGA preceding the PA/bypass amplifying circuit is reduced while **keeping** (instead of switching into) the PA/bypass amplifying circuit in bypass mode. Afterwards, the PA/bypass amplifying circuit is switched from bypass mode to PA mode. The process is reversed when the RF output power has to be decreased.

Additionally, it is not clear what is exactly meant by "inverse state" of the variable gain amplifier, the amplification path and the bypass.

4. For the examination of independent claims 1 and 10 with respect to novelty and inventive step, the above-mentioned unclear items are interpreted as stated above in points 2 and 3.

5. The document D1 (see figure 1 and column 3, lines 32-57) is regarded as being the closest prior art to the subject-matter of independent claims 1 and 10, and shows (the references in parentheses applying to this document) a power amplifier circuit for amplifying an input signal with respect to a specified RF output power, comprising:
- an input terminal for supplying the input RF signal to be amplified,
- an output terminal (18) for the RF signal with the output power specified,

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- an amplification path (14, 15, 16) formed between the input terminal and the output terminal (18) having a power amplification circuit (15) for amplifying the RF signal,
- a bypass (17) formed between the input terminal and the output terminal (18) for the RF signal to bypass the amplification path (14, 15, 16),
- a control terminal for controlling the operation of the amplification path (14, 15, 16) and the bypass (17) such, that an RF signal is either passed through the amplification path (14, 15, 16) or the bypass (17), and
- a variable gain amplifier circuit (13) for a preamplification of the input RF signal which is placed between the line from the input terminal to the amplification path (14, 15, 16) and the bypass (17).

The subject-matter of claim 1, as far as it can be understood, differs from this known power amplifier circuit in that it further comprises a delay control means as mentioned in claim 1, lines 25-30.

Therefore the subject-matter of claim 1 is new.

The problem to be solved by the present invention may be regarded as a reduction of glitches when switching from the amplification path to the bypass path or the other way round (see description, page 8, lines 1-19).

The above-mentioned problem is well-known in the art of amplifiers, however the way it is solved is neither disclosed nor suggested by the available prior art, thereby additionally rendering the subject-matter of claim 1 inventive.

6. A similar reasoning can be done for the corresponding method claim 10.

7. Claims 2-9 and 11-15 are dependent on claims 1 and 10 and, as far as they can be understood, as such also meet the requirements of the PCT with respect to novelty and inventive step, on the condition that claims 1 and 10 are clarified (see also point 2 above).

8. The independent claims 1 and 10 are not properly cast in the two-part form with respect to the document D1 (Rule 6.3(b) PCT) (see point 5 above as to which features of claim 1 are known from D1).